

What is claimed is:

1. A semiconductor pressure sensor comprising:

a Silicon substrate (1) with a diaphragm (10) which produces a distortion depending on a pressure;

strain gauges (5a, 5b, 5c, 5d) which are provided on the diaphragm (10) and is formed by diffusion resistors;

a PN-junction area which is provided adjacent to the strain gauges (5a, 5b, 5c, 5d) and which the reverse bias is applied to.

2. A semiconductor pressure sensor claimed according to Claim 1, wherein

the PN-junction area comprises the boundary surface between the silicon substrate (1) and a diffusion layer (8) provided in the silicon substrate (1).

3. A semiconductor pressure sensor according to Claim 2, wherein

the diffusion layer (8) is locally provided near the strain gauges (5a, 5b, 5c, 5d).

4. A semiconductor pressure sensor according to Claim 1, wherein

a plurality of the strain gauges (5a, 5b, 5c, 5d) are provided.

5. A semiconductor pressure sensor according to Claim 4,

2 wherein

3 a plurality of the strain gauges(5a, 5b, 5c, 5d) form a
4 Wheatstone Bridge circuit.

6. A semiconductor pressure sensor according to Claim 5,

2 wherein

3 the PN-junction area is provided only in the strain gauge
4 (5c) at the side of the large electrical potential difference
5 with a substrate potential among a terminal (4a) at the side
6 of a high electric potential in the Wheatstone Bridge circuit
7 and the terminal at the side of a low potential (4c).

7. A semiconductor pressure sensor according to Claim 2,

2 wherein

3 the diffusion layer (8) is formed of the combination of
4 the multiple long and slender patterns which is an acute angle
5 toward the strain gauges(5a, 5b, 5c, 5d).